line 17, delete "the"

line 22, substitute --control-- for "contol".

REMARKS

Reconsideration of this application is respectfully solicited.

The above amendments are offered to more particularly point out and distinctly claim applicant's invention and correct typographical and grammatical errors. In addition, draft revisions to the drawings are proposed to comply with the request of the Examiner.

Secrecy Order Requirements

The Examiner has noted at page 2 of the Official Action that applicant undertake the necessary steps to have a secrecy order imposed on this case. Those steps have indeed been taken as evidenced by the issuance of a Secrecy Order on July 19, 1995, which order has been acknowledged by submission of the Secrecy Order Receipt (PTOL-218) concurrently herewith.

Priority Benefit Claim

Submitted under separate cover concurrently herewith is a certified copy of the relevant priority document to perfect applicants' claim under 35 USC 119.

The 35 USC 112 Formal Objections

The Examiner's comments regarding the abstract have been noted. A revised abstract is submitted as an appendix hereto.

The various objections to the disclosure are believed to have been rendered moot by submission of the foregoing amendments which to a large degree adopt the helpful suggestions of the Examiner. One item of note, however, is the Examiner's object to page 4, line 28 and the term "assembly". Similar objection has been raised with regard to claim 3 "assembly (16)". This appears to be in proper form. However, in the event that counsel has overlooked the Examiner's point, it is respectfully requested that the undersigned either be contacted or a more definitive explanation for the Examiner's objection be provided.

Drawing Corrections

The Examiner has noted a number of objections to the drawings. Appended hereto are proposed revisions (noted in red) to Figures 3, 4, 5 and 6 with a letter to the Official Draftsman. The proposed revisions are believed to moot the concerns of the Examiner and will be formalized upon approval by the Examiner and indication of allowance of the application.

The 35 USC 112 Rejections

Claim 1 stands rejected on the ground that the term "roll movement" lacks

antecedent basis and further that the term "of which" is vague and indefinite. The foregoing amendments are believed to warrant favorable reconsideration of this rejection.

Claim 3 has likewise been rejected and it is believed that the amendments provided, render the rejection moot. Favorable reconsideration is solicited. However, in the event that the Examiner is not favorably persuaded, it is respectfully requested that the undersigned be contacted in an effort to resolve these issues of formality.

The Prior Art Rejections

Claim 1 has been rejected under 35 USC 103 as allegedly being obvious over the teachings of Gauggel et al. (USP 4,576,346) in view of Hartmann et al. (USP 4,823,626) and Jones (USP 4,508,293). This rejection is respectfully traversed for the reasons which follow.

Considering first the teachings of Gauggel et al., the only relevance to the invention claimed herein appears to be with respect to feature (a) of applicants' claim 1. Thus, Gauggel et al. does disclose a seeker (28) which is movable about a roll axis coinciding with the longitudinal axis of the missile and a pitch axis only which is orthogonal to the roll axis. As noted, admittedly this is element (a) of claim 1, but the remaining features of claim 1 are neither taught or suggested.

The reliance upon Hartmann et al. does not fill the deficiencies of Gauggel. Hartmann et al. relate to an inertial sensor unit which has two dynamically tuned gyros (10), (12) and accelerometers (14), (16) and (18) with mutually orthogonal sensitive axis.

The signal from the inertial sensors is digitized and supplied to a computer. The computer then compute inertial output signals corrected for sensor errors, and at the same time, caging signals for caging the gyro rotors. The caging signals are reconverted to analog signals and are applied to torquers on the gyros. It will be appreciated, therefore, that the device of Hartmann et al. is in inertial sensor unit which provides just inertial data indicative of the movement in inertial space. This is illustrated by boxes (48) and (56) of the present invention. Hartmann et al., however, do not teach or suggest features (a), (b), (d) and (e) of claim 1 herein. The Examiner will appreciate therefore, that to combine the seeker head of Gauggel et al. with an inertial sensor unit of Hartmann et al. does not result in applicants' claimed invention.

The deficiencies noted above cannot be eliminated by the Examiner's reliance upon the teachings of Jones. The Jones patent merely describes a missile with a "body gimablled" seeker, i.e. a seeker which is not inertially stabilized itself but is, nevertheless, movable by a " gimbal rate servo" relative to the missile body to point towards the target. This gimbal rate servo is arranged in a servo loop, to which the seeker output, namely target deviation ϵ from the seeker axis, is applied. The servo loop keeps the seeker pointing to the target. The servo loop virtually makes ϵ permanently zero. The angular rate of the rate servo relative to the body is proportional to the applied signal and thus, in turn, this signal is indicative of the angular rate of the seeker. This angular rate is proportional to the rate of the line of sight angle relative to the missile. Strapped down, i.e. body-fixed, gyros measure the body rate of the missile. These gyro signals are used

to correct the rate signals for the motion of the missile. This can be done by adding the missile angular rate from the strap down gyro to the signal applied to the gimbal rate servo, as shown in Fig. 2. Alternatively, the missile angular rate can be added directly to the signal applied to the gimbal rate servo. Jones teaches both as illustrated in Fig. 4.

However, Jones discloses no computer, to which target deviation signal (ϵ), pick-off signals (ß) and angular rate signals (Ψ dot) are applied and which is programmed to define a seeker reference (coordinate) system which is de-coupled from movements of the missile, the roll movement of which is zero and which is caused to track the target. Thus, Jones does not disclose or suggest feature (d) of claim 1. Further, Jones does not generate positioning commands causing the seeker to be aligned with the seeker reference system. The positioning commands of Jones have nothing to do with a virtual seeker reference system but a simply the amplified deviation signals provided by the seeker. Therefore, Jones does not disclose feature (e) of claim 1.

In summary, applicant's invention is directed to all measured variables to a computer which computes a virtual, inertial seeker reference system, the x-axis of which points to the target. The seeker is aligned with the x-axis, all of which is not disclosed by Jones.

Thus, even if one were to combine the art as suggested by the Examiner, they would not arrive at the claimed invention.

The Examiner has indicated the allowability of claims 2 and 3 if rewritten to overcome the 112 rejections and objections. It is believed that such has been done and

formal allowance is in order.

The additional art cited by the Examiner has been noted, but is not deemed anticipatory or suggestive of the invention claimed. Hence, further comment does not appear necessary.

With the submission of the present amendment and comments, formal allowance of this application appears to be in order. Such a favorably reply is awaited.

Respectfully submitted;

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